

Project Title: Complete Application Deployment Using Docker Containers

1. Introduction

1.1 Objective

Demonstrate expertise in deploying applications seamlessly using Docker containers.

2. Project Overview

2.1 Scope

Implement end-to-end application deployment, including containerization, orchestration, and monitoring.

2.2 Technologies Used

Docker

Docker Compose

Nginx (for reverse proxy)

Prometheus and Grafana (for monitoring)

AWS (for deployment)

3. Implementation

3.1 Docker Containerization

Containerizing Application:

Dockerizing a sample application to encapsulate dependencies and ensure portability.

Docker Compose Configuration:

Defining multi-container applications using Docker Compose for simplified orchestration.

3.2 Orchestration with Nginx

Reverse Proxy Setup:

Configuring Nginx as a reverse proxy to manage traffic and enhance application security.

3.3 Monitoring with Prometheus and Grafana

Prometheus Integration:

Instrumenting containers for Prometheus monitoring.

Grafana Dashboard Setup:

Creating Grafana dashboards for visualizing containerized application metrics.

3.4 AWS Deployment

AWS EC2 Instance Setup:

Launching EC2 instances for deploying Docker containers.

Container Registry Integration:

Utilizing AWS container registry for storing and managing Docker images.

Deployment Automation:

Implementing automated deployment scripts using AWS services.

4. Results

Successfully deployed a containerized application with orchestrated components.

Established seamless monitoring and visualization using Prometheus and Grafana.

5. Learning Points

Gained hands-on experience in Docker containerization and orchestration.

Mastered the integration of monitoring tools into a containerized environment.

6. Conclusion

This project showcases my ability to deploy applications efficiently, leveraging Docker containers and associated technologies. The integration with AWS demonstrates practical deployment skills, while the monitoring setup ensures optimal performance.